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An Empirical Analysis

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The Educational and Professional Background of Central Bankers and its Effect on Inflation – An Empirical Analysis

Abstract
We assume that central banks can control inflation so that inflation rates reflect the preferences of the central bank council. The hypothesis to be tested is that these preferences depend on the central bankers' educational and/or professional background. In a panel data analysis for the euro area and eleven countries since 1973, we explain inflation first by the weights which the various educational and professional characteristics occupy in the central bank council and second by the education or profession of the median central bank council member. Our results indicate that, with regard to professional background, former members of the central bank staff as well as former bankers and businessmen have the strongest inflation aversion and that former trade unionists and politicians seem to have the highest inflation preference. As for the education of the council members, our results are less robust. However, if the median member of the central bank council has studied business, the inflation rate is significantly lower than if she has studied economics.

JEL-Classification: E42, E58

Keywords: Central Bank, Monetary policy, Interest groups

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1. Introduction

When central banks are independent with regard to monetary policy, the outcome depends on the policy preferences of the central bankers. What shapes their preferences? Several factors have been discussed and analyzed in the literature. Firstly, central bankers may be influenced by public opinion as expressed in the media (Havrilesky 1993; Froyen et al. 1997; Maier et al. 2002; Maier, Bezoen 2004; Maier, Knaap 2003) or in opinion surveys (Hayo 1998; Vaubel 2003). Secondly, they may respond to the demands of specific interest groups (von Bonin 1979; Havrilesky 1990; Posen 1993a, b; Hefeker 1997). Thirdly, they may feel loyal to the party which has appointed them (McGregor 1996; Vaubel 1993, 1997 a, b). Fourthly, they may pay attention to the wishes of the current government even though they enjoy policy independence. Fifthly, their views may have been shaped by their education and their professional background (von Bonin 1979; Vaubel 1993, Anhang 2).

In this paper, we analyze whether and how the education and professional career of central bankers affect their inflation preferences. This is important because it will inform governments and the public how the appointment of central bank members can lead to price level stability. We assume that central banks – with a lag of about two years – can control inflation by using their monetary policy instruments.[1] This presupposes that they know fairly accurately how the demand for (central bank) money is changing over time. Education and professional career affect the inflation preferences of central bankers because they convey knowledge about the effects of inflation. In addition, professional experience may generate personal loyalties to special interest groups: a profession or industry, a party, a bureaucracy, an income group etc.

We have collected information on the educational and professional histories of 391 central bank council members from eleven countries over the time period 1973–1998 (for three of them until 2001) and for the European central bank in 1999–2003. We estimate cross-section time-series regressions which also allow for the independence of the central bank and the exchange rate regime.

The structure of the paper is as follows. In section 2, we formulate hypotheses about the influence of education and professional experience on the inflation preferences of central bankers. Section 3 summarizes our data for each of the twelve central banks and compares them. Section 4 presents the econometric results. Section 5 sums up.

[1] For recent demonstrations that the trend of monetary expansion relative to the trend of output growth is a good predictor of the inflation rate see von Hagen (2004) and Neumann/Greiber (2004).

2. Hypotheses

From a theoretical point of view, the main difference between educational and professional influences is that only the professional influence may reflect the activity of organised interest groups. For example, the banking industry may delegate some of their members to the central bank council. Alternatively, of course, the inflation preferences of bankers may be due to a "déformation professionelle", and in the same way, there may be a "déformation éducationelle".

As for the *university education*, we distinguish *economists*, former students of *business administration*, *lawyers* and *engineers*. One might assume that economists have the best qualification for central banking. They should know more about macroeconomics (notably monetary economics), international economics and the principles of economic policy. However, depending on whether they have received a Keynesian or a monetarist education and whether they have studied with a left-leaning or a conservative professor, their economics training may have raised or lowered their preferred inflation rate. Thus, their inflation preference is theoretically ambiguous. But economists are more likely to attain the inflation rate which they prefer.

With regard to monetary policy, former students of *business administration* are probably more competent than *lawyers* and *engineers*. The latter are most likely to miss their inflation targets. At the same time, former students of business administration, law and engineering are probably altogether more conservative than the average economist because inflation interferes with their activities. However, since they do not know very well how monetary policy affects inflation, they may be more responsive to the wishes of the politicians who have appointed them – notably at election time. Thus, it is an open issue whether to expect a higher or lower inflation rate from these non-economists.

With regard to *professional background*, we distinguish *bankers*[2], *insurance executives, businessmen, economic scholars, central bank staff, trade unionists, ministerial* and *other civil servants*[3] as well as *politicians.*[4]

First of all, what do economic theory and evidence tell us about the inflation preferences of the various interest groups? We expect that *union leaders, politicians* and *ministerial civil servants* on average prefer higher inflation rates because many of them wish to use inflation to redistribute among income groups,

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2 The group "bankers" includes commercial and public bankers, but no former central bank staff.

3 The group "other civil servants" includes persons who have worked with international organisations or public banks.

4 See Table 7 in the appendix for a complete description of the variables.

reduce real government debt or engineer pre-election booms.[5] According to Hibbs' partisan theory (1977), unionists and left-wing politicians are most inclined to seek redistribution by unexpected inflation.

By contrast, we expect that *bankers*, as an interest group, prefer low inflation. As Chen (2004) has shown, inflation has a significantly negative effect on the real profits of German commercial banks (even though it raises the interest rate spread between bank credits and deposits, probably due to money illusion on the part of depositors). Inflation affects bank profits negatively because, as Boyd et al. (2001) demonstrate, it reduces the liquid liabilities of the financial sector relative to GDP (gross domestic product): investors turn away from deposits to real assets and equity. Hefeker (1997) argues that *bankers* and (other) *businessmen* should have similar interests because the profits of business are used to repay the loans. Large exporters, it is true, may be interested in inflationary surprises which temporarily lead to a real depreciation of the currency. More generally, unanticipated inflation temporarily reduces real wages and real interest rates ex post. But if inflation has to be reduced after the election, the reverse is true. Traditionally, *bankers* and *businessmen* support conservative political parties which aim at low inflation. Thus, we expect that not only bankers but the whole business community prefers low inflation.

Insurance executives prefer low risk for their assets. They aim at stable inflation rates, and since low inflation rates tend to be most stable[6], they vote in favour of price level stability.

Second, how does the professional background affect the personal independence of central bankers? Council members from the private sector are more likely to find an attractive alternative job when they fail to be reappointed than are *former politicians* or *union leaders*. Members from the public sector are somewhere in-between. The independence effect reinforces the preference effect: the more political the background, the higher the expected inflation rate.

3. A descriptive analysis of the data

Table 1 summarizes the educational and professional background of the members of the central bank governing council in eleven countries (1973–1998)[7] and the European Monetary Union (1999–2003 and 1999–2001).[8] We have

5 The political economy of inflation is surveyed in Vaubel (1997a).

6 For a recent study see Davis, Kanago (1998, Table 2).

7 The data for Portugal are only available from 1980 onwards.

8 The numbers in the Table indicate the percentages of total man years in the council accounted for by each background. The percentages sum to 100 in each column in each panel (except for rounding errors). The last row indicates the compound average rate of consumer price inflation lagged two years, i.e., from 1975 to 2000 or, for the ECB, from 2001 to 2003 (World Bank statistics).

Table 1

Descriptive statistics of the central bank governing council

Percentage of total man years

Country or EMU	Austria	Belgium	Denmark	Germany	Finland	France	The Nether-lands	Portugal	Switzer-land	United Kingdom	United States	ECB
	1973–1998	1973–1998	1973–1998	1973–1998	1973–1998	1973–1998	1973–1998	1980–1998	1973–1998	1973–1998	1973–1998	1999–2003
Education												
Economics	15	48	91	56	54	25	64	82	54	24	64	62
Business	33	17	9	17	3	1	0	4	13	16	22	4
Law	36	19	0	20	32	35	36	13	33	22	7	18
Engineering	12	10	0	0	0	12	0	0	0	9	1	6
Others	1	7	0	7	11	27	0	1	0	9	6	4
Unknown	3	0	0	0	0	0	0	0	0	19	0	6
Profession considering whole career												
Banker	14	3	33	12	11	8	15	25	28	18	20	9
Insurance executive	14	0	0	0	0	1	0	0	0	3	0	0
Businessmen	26	2	0	3	8	11	1	4	1	33	13	2
Farmer	2	0	0	0	0	4	0	0	0	0	0	0
Lawyer	1	1	0	0	5	0	0	1	4	3	2	2
Economic scholar	1	6	13	13	0	14	14	27	6	7	25	20
Central bank staff	3	30	23	16	10	11	52	9	35	16	17	23
Trade unionist	13	0	0	1	0	10	0	0	0	6	0	0
Ministerial civil servant	5	31	17	23	26	27	9	15	11	4	6	25
Other civil servant	11	18	14	19	9	14	3	11	15	9	16	10
Politician	5	8	0	13	31	1	6	8	0	1	1	6
Unknown	4	0	0	0	0	0	0	0	0	0	0	3
Profession considering only last position												
Banker	17	9	57	9	21	8	17	26	22	22	24	13
Insurance executive	19	0	0	0	0	3	0	0	0	5	0	0
Businessmen	27	0	0	1	10	15	0	7	0	38	14	0
Farmer	3	0	0	0	0	3	0	0	0	0	0	0
Lawyer	0	0	0	0	0	0	0	0	0	0	0	0
Economic scholar	0	6	14	16	0	14	3	8	11	4	27	12
Central bank staff	1	28	22	19	16	13	54	1	37	23	15	30
Trade unionist	12	0	0	0	0	12	0	0	0	5	0	0
Ministerial civil servant	0	26	5	19	11	25	14	15	1	0	8	25
Other civil servant	9	16	2	16	3	6	0	27	29	4	13	5
Politician	9	15	0	19	39	2	12	16	0	0	0	12
Unknown	4	0	0	0	0	0	0	0	0	0	0	3
Inflation per annum lagged two years, per cent	3,6	2,8	5,4	2,9	6,0	5,5	3,4	13,2	2,8	7,3	4,9	2,2

Data collected by the authors.

collected these data from various "Who's who?" volumes, central bank websites and personal enquiries with central banks and former governing council members. Only four central bank members could not be classified according to education and professional background. The governing council as defined in this paper is the body charged to "formulate the monetary policy ... including, as appropriate, decisions relating to intermediate monetary objectives, key interest rates and the supply of reserves" (Article 12.1 of the statute of the ECB). Our sample of 395 council members includes only those entitled to vote. If a council member has studied more than one subject or has worked in more than one profession, we allocate equal fractions to these different backgrounds. With regard to profession, we distinguish the last position prior to being appointed to the council and the whole career.

With regard to education, Table 1 reveals that economists used to have an absolute majority in the central banks of Denmark, Portugal, the United States, the Netherlands, the European Monetary Union, Germany and Finland (in descending order). They were also the largest group in Belgium and the U.K. By contrast, the largest group in the French and Austrian central bank councils had studied law. A law background is also quite frequent (accounting for more than 30 per cent) in the Netherlands, Switzerland and Finland. 20 per cent or more of the "knowns" in the Austrian, the U.S. and the U.K. central bank councils have studied business. 10 per cent or more of the "knowns" in France, Austria, the U.K. and Belgium have a degree in engineering.

Central banks with an absolute majority of economists exhibit an (unweighted) average rate of inflation of 5.4 per cent against 4.4 per cent for the others. In the five countries in which more than 30 per cent of the council members had studied law, the average inflation rate was 4.3 per cent.

It should be noted that the share of members with an economics training is much higher in the ECB Council (62 per cent) than, on average, in the member central banks covered by Table 1 (49 per cent). The ECB Council is composed of the twelve national central bank governors and six executive directors. While the national central bank councils contain quite a few non-economists, the governor is usually an economist, and, for the Board of Executive Directors, candidates with good economics training are also more likely to be proposed and accepted.

We now turn to the professional background and focus on the last position before the appointment to the central bank council. To give more structure to the analysis, Table 2 aggregates these data in four groups: private sector background (bankers, insurance executives, businessmen, farmers, practicing lawyers) and public or political sector background, and within the public or political sector we distinguish monetary policy experts (central bankers, economic scholars) and non-experts (politicians, labour union leaders and civil ser-

Table 2

Descriptive statistics of the professional background, last position[1]
Share in per cent

	Private sector[2]	Public sector		
		total	monetary policy experts[3]	non-experts[4]
Austria	69	32	1	31
Belgium	9	91	34	57
Denmark	57	43	36	7
Germany	10	89	35	54
Finland	31	69	16	53
France	29	72	27	45
The Netherlands	17	83	57	26
Portugal	33	67	9	58
Switzerland	22	78	48	30
UK	65	36	27	9
US	38	63	42	21
ECB[5]	14	86	43	43

Data collected by the authors. – [1]Excluding "others" and "unknowns". – [2]Bankers, insurance executives, businessmen, farmers. – [3]Central bankers, economic scholars. – [4]Politicians, trade unionists, civil servants. – [5]1999–2001.

vants). The group from the private sector had a majority in Austria, the U.K. and Denmark. It was smallest in Belgium, Germany, EMU and the Netherlands. Within the public or political sector, the group of monetary policy experts (central banker, economic scholars) occupied the largest share in the Netherlands (57 per cent), Switzerland (48 per cent), the EMU (43 per cent) and the U.S. (42 per cent). Non-experts from the public sector had the majority in Portugal (58 per cent), Belgium (57 per cent), Germany (54 per cent) and Finland (53 per cent).

In the three countries in which members from the private sector used to have a majority, the (unweighted) inflation average has been 5.4 per cent, in the other countries 4.8 per cent. Within the latter group, those countries in which non-experts from politics and the civil service commanded a majority, experienced an average inflation rate of 6.2 per cent (with a very large cross-sectional variance).

However, it is impossible to draw any firm conclusions about preferences from these comparisons because they ignore the political constraints (the exchange rate regime and functional dependence) under which these central bankers have pursued their preferences.

4. A cross-section time-series analysis

For our analysis we estimate cross-section time-series regressions. The first specification includes only observations with an independent central bank[9] and a flexible exchange rate regime[10], i.e.:

$$\pi_{jt} = b_0 + \sum_i b_i x_{ijt-2} + \theta_t + \eta_j + \varepsilon_{jt} \quad (1)$$

where

π_{jt} : consumer price inflation in country j in year t,
x_{ijt-2} : percentage share of educational or professional background i in country j in year t–2,
θ : series of time dummies,
η : series of country dummies and
ε : disturbance term.

The identification strategy of a linear regression model implies that the inflation rate as the dependent variable does not affect the appointment of the central bank council members regarding their educational and political background. This assumption seems to be justified because we assume that monetary policy decisions affect the inflation rate with a lag of about two years as most econometric estimates indicate.[11]

The regression does not include any economic determinants of inflation (such as monetary expansion, the interest rate or output growth) because we assume that central bankers either control these variables or take them into account as they employ their monetary policy instruments to attain their ideal inflation rates. We add dummies for each year and for each country (fixed effects) unless indicated otherwise, but the coefficients of the year dummies are not reported.[12] In a second specification, we will later also allow for the independence of the central bank and the exchange rate regime.[13] We have also experimented with the average age of council members because it may affect their

9 In this paper the definition of central bank independence is based on Masciandaro/Spinelli (1994) who provide ranking indices of functional independence for the 21 OECD central banks. With our sample of countries, the number of ranks dropped from seven to six. Central banks are defined as functionally independent if they have one of the three highest ranks.

10 The exchange rate regime is classified as flexible when there is no parity or reference rate vis-à-vis another currency or if the central bank is the hegemon of a parity system (as the German Bundesbank dominated the European Monetary System). Our source is Microsoft Encarta Encyclopedia 2000.

11 For a recent demonstration see European Central Bank, Monthly Report, July 2000. We have also tried a three-year lag, the results are very similar.

12 If central bankers have not only inflation targets but also country- or time-specific output or employment targets, these should be captured by the dummies.

13 Almost all studies analyzing monetary political business cycles or the effect of central bank independence on inflation ignore the exchange rate regime. Notable exceptions are Jonsson (1995), Leertouwer, Maier (2001) and Vaubel (2003).

independence, their preferred inflation rate and their ability to attain it. But the effect turned out to be insignificant and did not change the results.

Column 1 of Table 3 reports the results for a regression only on the educational background. The central bankers who have studied economics are used as the reference group. All coefficients are negative but only former students of "other subjects" (including languages, philosophy, psychology etc.) prefer a significantly lower inflation rate than economists do. Jointly, the explanatory variables are marginally insignificant at the five per cent level.

Column 2 of Table 3 replicates the analysis for the professional background as measured by the last position held before appointment to the central bank council. The reference group is politicians. Except for the trade unionists, all professional groups have negative coefficients but, at the five per cent level of significance, only former insurance executives, central bank staff, bankers and businessmen prefer a significantly lower inflation rate than politicians (and trade unionists) do. If, for example, the share of insurance executives increases by one percentage point (at the expense of former politicians), the inflation rate drops by about 0.4 percentage points. There is no significant difference between politicians and trade unionists, economic scholars or civil servants, ministerial or other, at the five per cent level. Tests of significance of the differences between non-reference groups show inter alia that former economic scholars and other civil servants have a significantly higher inflation preference than former central bank staff and insurance executives. The explanatory variables are jointly significant at the one per cent level.

In Column 3 of Table 3, the professional background is measured over the whole career rather than by the last position of the council member. The coefficient of former central bank staff remains significantly negative and increases in size. Moreover, the non-ministerial civil servants take a large and significant negative coefficient. In the following, we focus on the last position because it has more explanatory power as measured by the adjusted R^2.

Column 4 of Table 3 combines the educational and professional background variables. All educational differences drop to insignificance. That is not surprising because the educational and the professional variables are clearly correlated. With regard to the professional background, former central bank staff, commercial bankers and businessmen are still significantly more inflation-averse than politicians and trade unionists at the five per cent level.

The inflation preferences of the council members cannot exert themselves without constraint unless the exchange rate is flexible and the central bank is independent. But even if the government fixes an exchange rate parity, there will be margins of fluctuation and the central bank council may yield some power of persuasion over the minister of finance when a parity adjustment is

Table 3

Regression on the educational and professional background for an independent central bank and flexible exchange rate system – fixed effects

Dependent variable: inflation rate lagged two years

Variable	(1) Education[1]	(2) Profession (last position)[2]	(3) Profession (all positions)[2]	(4) Education and profession (last position)[3]
Law	–0.002 (–0.04)			0.011 (0.14)
Business	–0.053 (–1.07)			0.058 (1.24)
Unknown education	–0.104 (–1.05)			0.069 (0.63)
Other subjects	–0.138 ** (–2.47)			–0.119 (–1.26)
Engineering	–0.272 (–1.53)			–0.013 (–0.08)
Trade unionist		0.044 (0.19)	–0.178 (–0.59)	0.319 (0.91)
Unknown profession		–0.110 (–0.42)	–0.223 (–0.78)	–0.161 (–0.52)
Economic scholar		–0.128 * (–1.91)	–0.130 (–0.93)	–0.144 * (–1.81)
Businessman		–0.151 ** (–2.10)	–0.132 (–1.07)	–0.153 ** (–2.09)
Other civil servant		–0.151 * (–1.75)	–0.342 *** (–2.82)	–0.129 (–1.47)
Ministerial civil servant		–0.200 (–1.67)	–0.215 * (–1.69)	–0.145 (–1.31)
Banker		–0.222 ** (–2.33)	–0.258 * (–1,86)	–0.193 ** (–2.25)
Central bank staff		–0.259 *** (–3.14)	–0.355 *** (–3.22)	–0.279 *** (–3.32)
Insurance executive		–0.379 *** (–2.83)	–0.370 * (–1.78)	–0.198 (–1.12)
Constant	5.265 (2.21)	17.562 (2.77)	22.384 (2.72)	15.456 (2.04)
F-Test	7.39	8.59	17.69	10.39
Adjusted R^2	0.7255	0.7711	0.7306	0.7905
F-Test of joint significance of edu./prof. variables	2.20	4.07	2.86	3.01
p-value[4]	0.0675	0.0006	0.0086	0.0026

Authors' calculations. – *significant at 10 %; **significant at 5 %; ***significant at 1 %, robust t-statistics in parentheses. – Number of observations: 92. See appendix Table 7 for a description of the variables. Regressions were estimated including country and time dummies for each year. – [1]The reference group is economics. – [2]The reference group is politicians. – [3]The reference group for the education variables is economics. The reference group for the profession variables is politicians. – [4]p-value of the F-Test-statistics of joint significance.

considered. Monetary policy advice from the central bank council may even matter when the central bank lacks independence. Thus, as a next step, we shall simultaneously analyse four different regimes:

R_1 : flexible exchange rate and independence,

R_2 : fixed exchange rate and independence,

R_3 : flexible exchange rate and dependence,

R_4 : fixed exchange rate and dependence.

Each R_k is a dummy which is equal to 1 if the specified regime prevails and which is equal to zero otherwise. The dummies are multiplied by the educational and/or professional variables:

$$\pi_{jt} = b_0 + \sum_{ik} b_{ik} \cdot x_{ijt-2} \cdot R_{jkt-2} + \theta_t + \eta_j + \varepsilon_{jt}. \tag{2}$$

We expect that the impact of the educational and/or professional shares on inflation diminishes as the constraints (k) increase.

Table 4 reports the results of estimating specification (2) with regard to both education and professional background.[14] With a flexible exchange rate and central bank independence (column 1), there remains the significantly negative effect for former central bank staff. In the other regimes, there are significantly negative coefficients for bankers, economic scholars and businessmen as well as, with regard to education, for former students of business and "other" or "unknown" subjects. By contrast, a law degree significantly raises the rate of inflation in column 2. While former central bank staff affects the inflation rate by their independent action, the significance of these other groups might derive from their ability to persuade the government. The explanatory variables are jointly significant under each regime.

So far we have applied a mean voter framework instead of a median voter approach. However, central bank councils decide by simple majority and bargaining ("logrolling") between council members is likely to be limited because the issue space tends to be one-dimensional. However, the regression coefficient of the share estimates can be used to rank the inflation preferences of the various members and determine the median. As is turns out, we also have to rank coefficients which are not significantly different from each other but this weakness may be outweighed by the advantage of using the correct voting procedure. We regress the inflation rate on dummies indicating the educational and/or professional background of the median council member. Since some of the background characteristics never apply to a council median, the number of explanatory variables declines.

[14] Separate estimates for education or professional background are reported in the Appendix (Tables 8 to 10). Empty cells are caused by dropped variables if there are no observations for this regime or if the variable is time-invariant (for example a share of constantly x per cent). Rarely, dropouts are due to collinearity.

Table 4

Regression on the educational and professional background (last position) – fixed effects
Dependent variable: inflation rate lagged two years

Variable	Flexible exchange rate and independence	Fixed exchange rate and independence	Flexible exchange rate and dependence	Fixed exchange rate and dependence
(obs.)	(92)	(98)	(72)	(28)
Unknown education	0.138	–0.582 ***		
	(1.51)	(–2.75)		
Business	0.055	0.015	–0.279 **	0.469
	(1.40)	(0.51)	(–2.51)	(1.28)
Law	0.036	0.103 ***	0.021	–0.042
	(0.77)	(2.65)	(0.61)	(–0.90)
Engineering	0.125	–0.013		
	(1.19)	(–0.21)		
Other subjects	–0.104 *	–0.091 ***	–0.039	
	(–1.70)	(–2.72)	(–0.88)	
Trade unionist	0.335	–0.005		
	(1.58)	(–0.06)		
Other civil servant	–0.077	–0.090 *	–0.103	–0.357
	(–1.60)	(–1.89)	(–1.25)	(–1.39)
Economic scholar	–0.031	–0.034	–0.338 ***	–0.120
	(–0.89)	(–0.50)	(–3.92)	(–0.43)
Ministerial civil servant	–0.034	0.005	–0.168	–0.005
	(–0.58)	(0.15)	(–1.59)	(–0.05)
Businessman	–0.015	0.038	–0.055	–0.427 **
	(–0.40)	(0.75)	(–0.79)	(–2.06)
Unknown profession	–0.256	0.299		
	(–1.49)	(1.63)		
Banker	–0.069	–0.080 **	–0.117	–0.049
	(–1.54)	(–2.01)	(–1.46)	(–0.26)
Insurance executive	–0.144	0.065		
	(–1.12)	(0.66)		
Central bank staff	–0.177 ***	–0.072	–0.074	–0.108
	(–4.56)	(–1.59)	(–0.76)	(–0.99)
Constant		7.621		
		(3.00)		
Adjusted R^2		0.7924		
F-Test of joint significance of edu./prof. variables	2.89	7.88	8.71	5.70
p-value[4]	0.0005	0.0000	0.0000	0.0000

Authors' calculations. – *significant at 10 %; **significant at 5 %; ***significant at 1 %, robust *t*-statistics in parentheses. Total number of observations: 291. The number of observations for each regime is indicated at the head of the columns. See appendix Table 7 for a description of the variables. Regressions were estimated including country and time dummies for each year. The reference group for the education variables is economics. The reference group for the profession variables is politicians. – [4]p-value of the F-Test-statistics of joint significance.

Table 5 presents the results for the educational background (fixed effects) if the exchange rate is flexible and the central bank is independent.[15] As before,

15 The number of observations drops to 79 because in 13 observations the median was indeterminate, i.e., the council was exactly split in halves.

Table 5

Regression on the median of the educational background – fixed effects
Dependent variable: inflation rate lagged two years

Variable	Effect if flexible exchange rate and independence
Business	–5.693 ** (–2.43)
Law	–1.598 (–0.87)
Constant	3.768 (3.98)
F-Test	16.44
Adjusted R^2	0.7384

Authors' calculations. – *significant at 10 %; **significant at 5 %; ***significant at 1 %, robust *t*-statistics in parentheses. – Number of observations: 79. See appendix Table 7 for a description of the variables. Regressions were estimated including country and time dummies for each year. The reference group is economics.

the reference group is economics. If we take the t-statistics at face value[16], the negative coefficient for "business" is significant at the 5 per cent level. It is implausibly large: if the median council member has a business degree rather than an economics degree, the inflation rate drops by 5.7 percentage points. This may be due to the fact that the median does not change very often over time.

The professional background is analyzed in Table 6. Here, the reference group is economic scholars because the median position was never occupied by a politician. The estimate confirms that former central bank staff is most averse to inflation and that they prefer a significantly lower inflation rate than economic scholars do. Moreover, former bankers, businessmen and civil servants also vote for a significantly lower inflation rate than economic scholars do. Once more, the regression coefficients are implausibly large.

We do not combine the educational and professional variables because the median voter model requires ranking in a single dimension. Nor do we add the constrained regimes because the ranking would differ according to the regime which is implausible.

5. Summary and conclusions

The analysis leaves no doubt that the inflation rate depends on the professional background of the members of the central bank council. If the central bank is independent and the exchange rate is flexible, former members of the central bank staff pursue the most anti-inflationary policies, whereas former trade unionists and politicians are most inflation prone. Former commercial

16 In a two stage procedure, the assumption of a t-distribution is less likely to be warranted.

Table 6

Regression on the median of the professional background (last position) – fixed effects
Dependent variable: inflation rate lagged two years

Variable	Effect if flexible exchange rate and independence
Other civil servant	–3.740 *** (–3.73)
Ministerial civil servant	–5.185 ** (–2.24)
Businessman	–5.359 *** (–3.86)
Banker	–7.316 *** (–3.90)
Central bank staff	–11.296 *** (–2.76)
Constant	7.951 (4.53)
Adjusted R^2	0.8786

Authors' calculations. – *significant at 10 %; **significant at 5 %; ***significant at 1 %, robust t-statistics in parentheses. – Number of observations: 79. See appendix Table 7 for a description of the variables. Regressions were estimated including country and time dummies for each year. The reference group is economic scholars.

bankers and businessmen also prefer a lower inflation rate than trade unionists and politicians do. All these differences are significant at least at the five per cent level.

If the median in the central bank council is a former staff member, banker, businessman or civil servant (in this order), the inflation rate is significantly lower than if an economic scholar holds the median position. It seems that economic scholars are more likely to take a Keynesian view of the world than the practitioners do.

The effects of educational background on inflation are much less robust. Together with the professional variables, educational background is never significant at the five per cent level, if the central bank is independent and the exchange rate is flexible. However, if the central bank is dependent or if the exchange rate is fixed, education seems to affect the ability to persuade the government. Students of law plead for a higher inflation rate, and students of business favour a lower inflation rate than economists do.

Students of business also prefer a significantly lower inflation rate than economists in a regime of central bank independence and flexible exchange rates if the professional variables are omitted in a median voter analysis. If the median member of the central bank council has studied business, our estimate yields a 5.7 percentage point lower inflation rate than if she has studied economics. Admittedly this estimate is merely suggestive. But it is quite in line with our results for the professional variables: the study of economics, both as a student

and as a scholar, has significantly raised the preferred inflation rate relative to other activities.

This raises a puzzle. Are not the former members of the central bank staff also predominantly economists? They were found to have the strongest inflation aversion. There are two ways of reconciling these results. First, central banks may primarily attract economists who belong to the minority of monetary conservatives ("self-selection"). Alternatively, economists who work in a central bank may tend to become monetary conservatives because they are exposed to certain ideas[17] or come to share certain vested interests ("déformation" – or rather "formation"? – "professionnelle").

Both educational and professional background contribute to explaining the monetary policies and inflation record of central bankers.

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[17] In the German literature, this is called the Thomas Becket effect.

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Table 7

Description of the variables

Variable	Description
Economics	studied economics
Business	studied business management or something similar or completed an apprenticeship in a bank
Law	studied law
Engineering	studied engineering
Other subjects	defined for all other educations such as languages, philosophy, psychology or public administration
Banker	employed in a bank either commercial or public but not in a central bank
Insurance executive	worked for an insurance company
Central bank staff	worked in a central bank
Businessman	managed a company as a director or member of the executive board, belonged to employers or industry association or was self-employed, in regressions including also farmers and lawyers
Trade unionist	worked for a labour union
Economic scholar	researcher at an institute or university (mostly as a professors of economics)
Ministerial civil servant	worked in a ministry, includes state secretaries
Other civil servant	worked in other public institutions like public banks (not central banks) or international organisations
Politician	former minister or parliamentarian (or both)

Table 8

Regression on the educational background – fixed effects

Dependent variable: inflation rate lagged two years

Variable (obs.)	Flexible exchange rate and independence (92)	Fixed exchange rate and independence (98)	Flexible exchange rate and dependence (72)	Fixed exchange rate and dependence (28)
Law	0.050 * (1.73)	0.068 *** (2.78)	0.053 (1.18)	–0.068 *** (–2.86)
Business	0.014 (0.46)	0.060 ** (2.16)	–0.129* (–1.68)	0.064 (0.81)
Unknown	–0.016 (–0.25)	–0.470 *** (–4.69)		
Other subjects	–0.075 * (–1.91)	–0.148 *** (–6.81)	–0.037 (–0.92)	
Engineering	–0.099 (–1.09)	–0.120 *** (–3.51)		
Constant		2.924 (4.25)		
F-Test		21.84		
Adjusted R^2		0.6838		
F-Test of joint significance of edu./prof. variables	1.57	16.58	2.15	6.40
p-value[4]	0.1705	0.0000	0.0945	0.0020

Authors' calculations. – *significant at 10 %; **significant at 5 %; ***significant at 1 %, robust t-statistics in parentheses. Total number of observations: 291. The number of observations for each regime is indicated at the head of the columns. See appendix Table 7 for a description of the variables. Regressions were estimated including country and time dummies for each year. The reference group is economics. – [4]p-value of the F-Test-statistics of joint significance.

Table 9

Regression on the professional background (last position) – fixed effects

Dependent variable: inflation rate lagged two years

Variable (obs.)	Flexible exchange rate and independence (92)	Fixed exchange rate and independence (98)	Flexible exchange rate and dependence (72)	Fixed exchange rate and dependence (28)
Trade unionist	0.186 (1.08)	0.137* (1.92)		
Unknown	–0.093 (–0.64)	–0.068 (–0.66)		
Economic scholar	0.010 (0.25)	0.007 (0.12)	–0.280*** (–2.89)	–0.415*** (–2.79)
Businessman	0.039 (1.05)	–0.033 (–0.61)	–0.092* (–1.14)	–0.197** (–2.00)
Other civil servant	–0.060 (–1.10)	–0.135*** (–3.03)	–0.150* (–1.67)	–0.047 (–0.17)
Ministerial civil servant	–0.040 (–0.69)	0.038 (1.11)	–0.036 (–0.44)	–0.118** (–2.02)
Banker	–0.027 (–0.55)	–0.070 * (–1.89)	–0.084** (–0.86)	–0.270*** (–2.98)
Central bank staff	–0.125*** (–3.24)	–0.095** (–2.18)	–0.041 (–0.45)	–0.259*** (–4.08)
Insurance executive	–0.108 (–0.96)	0.172* (1.96)		
Constant		7.604 (2.77)		
F-Test		15.68		
Adjusted R^2		0.7509		
F-Test of joint significance of edu./prof. variables	2.99	6,88	8.16	6.69
p-value[4]	0.0022	0.0000	0.0000	0.0000

Authors' calculations. – *significant at 10 %; **significant at 5 %; ***significant at 1 %, robust *t*-statistics in parentheses. – Total number of observations: 291. The number of observations for each regime is indicated at the head of the columns. See appendix Table 7 for a description of the variables. Regressions were estimated including country and time dummies for each year. The reference group is politicians. – [4]p-value of the F-Test-statistics of joint significance.

Table 10

Regression on the professional background (all positions) – fixed effects
Dependent variable: inflation rate lagged two years

Variable	Flexible exchange rate and independence	Fixed exchange rate and independence	Flexible exchange rate and dependence	Fixed exchange rate and dependence
(obs.)	(92)	(98)	(72)	(28)
Economic scholars	0.254***	0.048	–0.206	–0.649*
	(3.79)	(1.05)	(–1.63)	(–1.93)
Businessman	0.092**	–0.083*	–0.194**	–0.483***
	(2.14)	(–1.83)	(–2.17)	(–2.69)
Trade unionist	–0.077	0.142*		
	(–0.37)	(1.81)		
Ministerial civil servant	–0.007	0.013	–0.192**	–0.271
	(–0.10)	(0.30)	(–1,59)	(–1.17)
Unknown	–0.022	–0.167		
	(–0.14)	(–1.33)		
Banker	0.003	–0.092*	–0.007	–0.591**
	(0.06)	(–1.77)	(–0.06)	(–2.22)
Other civil servant	–0.200**	–0.110***	–0.239*	–0.175
	(–2.18)	(–3.38)	(–1.74)	(–0.82)
Central bank staff	–0.160***	–0.014	–0.145*	–0.537**
	(–3.14)	(–0.36)	(–1.12)	(–2.17)
Insurance executive	–0.101	0.209**		10.182
	(–0.74)	(2.11)		(1.05)
Constant		11.220		
		(2.79)		
F-Test		19.76		
Adjusted R^2		0.7376		

Authors' calculations. – *significant at 10 %;**significant at 5 %;***significant at 1 %, robust *t*-statistics in parentheses. Total number of observations: 291. The number of observations for each regime is indicated at the head of the columns. See appendix Table 7 for a description of the variables. Regressions were estimated including country and time dummies for each year. The reference group is politicians.